

REMARKS

The present application includes claims 1-25, which were rejected. By this amendment, claim 1 has been amended as set forth above. The Applicants respectfully submit that the pending claims define allowable subject matter.

Claims 1, 8-9, 11, 12, and 19-21 stand rejected under 35 U.S.C. 102(b) as being anticipated by the textbook entitled “PACS Basic Principles and Applications” by Huang (“Huang”). Claims 2-7, 10, 13-18, and 22-25 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Huang in view of United States Patent No. 6,231,246 (“Takeo”). The Applicants thank the Examiner for the thorough response to the arguments in the Advisory Action. In addition to the reasons previously set forth during prosecution of the present application, the Applicants respectfully traverse the aforementioned rejections for the reasons set forth below.

The Applicants first turn to the rejection of claims 1, 8-9, 11-12, and 19-21 over Huang. Huang teaches a system in which “an acquisition gateway computer can be placed between the imaging modality(s) and the rest of the PACS network to isolate the radiologic imaging modality host computer from the PACS.” Huang at 177. The PACS “consists of image and data acquisition, PACS controller and archive, and display subsystems integrated by digital networks.” *Id.* “The PACS controller is the engine of the PACS consisting of high end computers or servers; its two major components are a database server and an archive system.” *Id.* at 178. The operations of the PACS controller are listed on Table 7.1 of Huang at page 179.

Huang, at Table 7.2 on page 180, lists the major functions of a PACS workstation. Table 7.2, however, does not list selecting preprocessing functions or applying preprocessing functions at the workstation. The Examiner noted that “Table 7.2 was not relied upon to teach the step of selecting preprocessing functions or applying preprocessing functions at the workstation.” Nevertheless, the Applicants point out that “selecting or applying preprocessing functions” is clearly and notoriously *not* listed on Table 7.2. The Applicants doubt that selecting and applying preprocessing functions is considered a minor function. In other words, if Huang did, for the sake of argument, disclose selecting or applying preprocessing functions at a PACS workstation, this would most likely be listed on Table 7.2, which lists the major functions of the Huang workstation.

While it is true that the list *may* not be an exhaustive list, the Applicants respectfully submit that Huang does not teach, nor suggest, “selecting from a PACS database, using a PACS display workstation, a first preprocessing function for the raw image data, which has not been fully preprocessed according to a predetermined set of preprocessing functions, delivered from the image modality,” nor does it teach or suggest “processing said raw image data at the PACS display workstation by applying the first preprocessing function to the raw image data to create resultant image data,” as recited, for example, in claim 1 of the present application.

Image preprocessing, as described in Huang, is neither selected, nor applied, at the workstations. For example, at page 219, Huang states, “the acquisition gateway computer *must* perform certain image preprocessing functions *before* images are sent to

the PACS controller or workstations” (emphasis added). Further, “There are two categories of preprocessing functions. The first is related to the image format... [which is] described in 7.6. The second type of preprocessing prepares the image for an optimal viewing at the display workstation.” *Id.* at 219.

The Applicants note that Huang does not teach, nor suggest, that either of the two types of preprocessing functions are selected or performed at the workstations. On the contrary, Huang clearly states that these functions are performed *before* images are sent to the workstations. The acquisition gateway computer, but not the workstations, performs these preprocessing functions.

The Examiner astutely points out that “Huang teaches that the lookup tables containing the preprocessing functions can be inserted into the image header and sent to the PACS workstation, and ‘applied at the time of display to enhance the different types of tissue.’” However, the lookup table do not “contain preprocessing functions.” Nowhere does Huang state that the lookup table “contain preprocessing functions.” Instead, Huang, at 8.7.1.4 states the following: “These lookup table can be easily built in and inserted into the image header and applied at the time of display to enhance different types of tissue.” The Applicants note, however, that Huang teaches that the *generation* of the lookup tables *is* the preprocessing function, but *not* the application of a fully processed lookup table. See Huang at Section 8.7.1.4, page 222 (“The fourth preprocessing function for CR images *is the generation of a lookup table*”). Huang, however, does not teach, nor suggest, that selection or application of the *generation* of the lookup tables occurs at a workstation.

While Huang does states that “[t]hese lookup tables can be easily built in and inserted into the image header and *applied* at the time of display to enhance different types of tissue,” the Applicants note that the application of the lookup tables is *not* a preprocessing function. Further, the lookup tables are not applied to “raw image data.” When the lookup table is applied, the image data is no longer raw. The *generation* of the lookup table, as Huang states, *is* the preprocessing function, but this generation does not occur at the workstation.

The preprocessing functions disclosed in Huang are, as discussed above, performed *before* the images are sent to the workstation. Huang clearly and unambiguously states that preprocessing functions, such as the generation of a lookup table, which is a *Huang* preprocessing function (but application of the lookup table is not a preprocessing function), are performed before images are sent to the PACS workstation. In fact, Huang could not be any more clear at the introductory paragraph of Section 8.7, entitled “Image Preprocessing” on page 219:

In addition to receiving images from imaging devices, the acquisition gateway *must* perform certain image preprocessing functions *before* images are sent to the *PACS controller or workstations*.

Thus, Huang teaches away from selecting or applying preprocessing functions at the PACS workstation because, as explicitly stated above, the preprocessing function *must* be performed *before* the images are sent to the PACS workstations. Additionally, because the preprocessing functions must be performed before images are sent to the PACS workstation, Huang cannot process raw image data at the PACS display

workstation by applying the first preprocessing function,” as recited, for example, in claim 1.

Overall, Huang does not teach, nor suggest, “selecting from a PACS database, *using the PACS workstation*, a first preprocessing function for the raw image data delivered from the imaging modality.” Additionally, Huang does not teach, nor suggest, “processing said raw image data *at the PACS display workstation* by applying the first preprocessing function to the raw image data to create resultant image data,” because the preprocessing function of Huang relied upon by the Examiner, *i.e.*, generation of a lookup table, is not selected, nor performed, at the workstation. Again, as Huang clearly states at page 219, “the acquisition gateway computer *must* perform certain image preprocessing functions before images are sent to the PACS controller or workstation.” Huang simply does not disclose any preprocessing function that is selected or applied at the PACS workstation. Again, Huang specifically states that the *generation* of the lookup table is the “fourth preprocessing function,” but *not* the application of the fully processed lookup table. *Generation* of the lookup table is not selected, nor applied, at the workstation. A lookup table that has been previously generated may be applied later, but the application of a fully processed lookup table that has already been generated is *not* a preprocessing function. For at least these reasons, the Applicants respectfully submit that the claims of the present application are in condition for allowance.

The Applicants now turn to the rejection of claims 2-7, 10, 13-18, and 22-25 under 35 U.S.C. 103(a) as being unpatentable over Huang in view of Takeo. Huang relates to a PACS system as discussed above. Takeo, on the other hand, relates to an

“image reproducing method and apparatus for reproducing a visible image with a first image reproducing means and reproducing a visible image with a second image reproducing means.” Takeo at Column 1, lines 10-15. The Examiner states that he did not rely upon Takeo to teach a PACS. However, the Applicants respectfully submit that this is not germane to the issue whether Huang may be combined with Takeo. The Applicants respectfully submit that Takeo cannot be combined with Huang because both references relate to different “fields of endeavor.”

In Takeo, a previously generated visible image is reproduced by two image reproducing devices, such as CRT or LCD displays or laser printers. Takeo at Abstract, and Column 2, lines 47-54. The two image reproducing devices use different gradation characteristics in image reproduction. *Id.* at Column 2, lines 54-63.

Takeo does not relate to a PACS. In particular, Takeo does not teach, nor suggest, a picture archiving and communication system that connects to medical diagnostic imaging devices. Takeo simply does not teach, nor suggest, a PACS as recited in the claims of the present application, and/or as described in the specification of the present application. As such, the Applicants respectfully submit that the PACS system described in Huang cannot be combined with the image reproducing devices disclosed in Takeo.

The Applicants respectfully submit that hindsight based on the Applicant's disclosure is being used to pick and choose isolated elements from Takeo to fill in the gaps of Huang. As discussed above, Huang relates to a PACS, but Takeo does not. Takeo simply does not teach, nor suggest, a PACS as recited in the claims of the present

application. Takeo does not teach the use of a PACS display workstation. The displays in Takeo simply project the image (CRT or LCD) or print the image (laser printer). Thus, the Applicants respectfully submit that the isolated elements picked from Takeo cannot be combined with Huang, which relates to a different type of system, namely a PACS.

Even assuming that Huang could be combined with Takeo, the proposed combination still does not teach, nor suggest, all the limitations recited in the claims of the present application at least for the reasons discussed above with respect to Huang. Thus, the Applicants respectfully submit that the claims of the present application should be in condition for allowance.

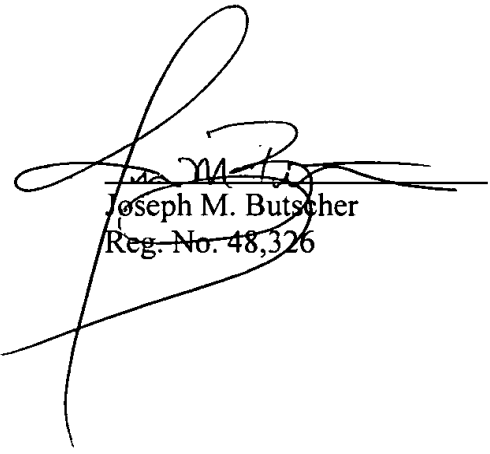
CONCLUSION

The Applicants respectfully submit that the claims of the present application are in condition for allowance and request reconsideration of the claim rejections. If the Examiner has any questions or the Applicants can be of any assistance, the Examiner is invited and encouraged to contact the Applicants.

The Commissioner is authorized to charge any necessary fees or credit any overpayment to the Deposit Account of GEMS-IT, Account No. 502401.

Respectfully submitted,

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